Universität Basel

Research Project

Towards a mechanistic understanding of common and rare genetic risk variants for bipolar disorder: studies in iPSC models and extended families

Third-party funded project

Project title Towards a mechanistic understanding of common and rare genetic risk variants for bipolar disorder: studies in iPSC models and extended families
Principal Investigator(s) Cichon, Sven ;
Co-Investigator(s) Forstner, Andreas ;
Project Members Hoffmann, Per ;
Organisation / Research unit
Faculty of Medicine
Departement Biomedizin / Human Genetics (Cichon)
Department
Project Website https://biomedizin.unibas.ch/en/research/research-groups/cichon-lab/
Project start 01.08.2019
Probable end 31.07.2022
Status Completed

The aim of the project is to improve understanding of the molecular basis of bipolar disorder (BD). To achieve this, research groups at the Universities of Basel (Switzerland) and Bonn (Germany) will apply innovative strategies and complementary expertise. In a functional approach, induced pluripotent stem cell (iPSC)-derived neural cells from selected BD patients and controls will be used to identify disease-associated transcriptomic and cellular signatures that are attributable to combinations of known common risk variants within neurodevelopmental pathways (Gene Ontology (GO)-term informed polygenic risk score analysis (PRS)). In parallel, rare novel risk variants with higher penetrance will be identified in multiply affected families with BD that were selected based on the potential for stronger genetic effects on neurodevelopmental processes. In a subsequent funding phase, we plan to introduce these variants into the iPSCs of BD patients and controls with differing PRS backgrounds.

Keywords neuropsychiatric disorders, genomics, risk variants, genome sequencing
Financed by
Swiss National Science Foundation (SNSF)